

What is claimed is:

1. A substrate for an unpackaged integrated circuit chip having surface mount contacts disposed thereon in a pattern, comprising:

an insulating material; and

5 a conductive material disposed over the insulating material, the conductive material comprising a plurality of contacts arranged in a pattern corresponding to the integrated circuit contact pattern, the conductive material comprising a conductive ring disposed around the periphery of the contact pattern, wherein the substrate contacts are coupleable to the integrated circuit chip surface mount contacts.

10 2. The substrate according to Claim 1, wherein the conductive material comprises at least one conductive trace disposed proximate at least one contact.

15 3. The substrate according to Claim 2, wherein at least one conductive trace is coupled to the conductive material ring.

4. The substrate according to Claim 1, wherein the substrate contacts comprise wire bond pads, wherein the wire bond pads are coupleable to the integrated circuit chip surface mount contacts.

20 5. The substrate according to Claim 1, wherein the insulating material comprises polyimide, fiberglass or a flexible dielectric material.

6. The substrate according to Claim 1, wherein the insulating material includes a plurality of apertures disposed in the integrated circuit contact pattern.

5 7. The substrate according to Claim 1 wherein the conductive material comprises Cu, Pt, Sn, Ni, Ag, Au, Cr, or combinations thereof.

8. The substrate according to Claim 1, wherein the conductive material is formed by electro-less plating.

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FOOTNOTES

9. A package for an integrated circuit chip having surface mount contacts disposed thereon in a pattern, comprising:

a substrate including an insulating material and a conductive material disposed over the insulating material, the conductive material comprising a plurality of contacts arranged in a pattern corresponding to the integrated circuit contact pattern, the conductive material comprising a conductive ring disposed around the periphery of the contact pattern, wherein the substrate contacts are coupleable to the integrated circuit chip surface mount contacts.

10. The package according to Claim 9, wherein the conductive material comprises at least one conductive trace disposed proximate at least one contact.

11. The package according to Claim 10, wherein at least one conductive trace is coupled to the conductive material ring.

12. The package according to Claim 9, wherein the substrate contacts comprise wire bond pads, wherein the wire bond pads are coupleable to the integrated circuit chip surface mount contacts.

13. The package according to Claim 9, further comprising an encapsulating insulating material disposed over the integrated circuit and substrate.

14. The package according to Claim 13, further comprising a shielding material disposed over the encapsulating insulating material, the shielding material being electrically coupled to the conductive material solid ring.

5 15. The package according to Claim 14, wherein the shielding material comprises an electrically conductive material.

10 16. The package according to Claim 14, wherein the shielding material comprises a dissipative material having less than about 1 MΩ resistance.

17. The package according to Claim 9, wherein the substrate insulating material comprises polyimide, fiberglass or a flexible dielectric material, and wherein the conductive material comprises Cu, Pt, Sn, Ni, Ag, Au, Cr, or combinations thereof.

15 18. The package according to Claim 9, wherein the substrate insulating material includes a plurality of apertures disposed in the integrated circuit contact pattern.

19. The package according to Claim 9, wherein the substrate conductive material is formed by electro-less plating.

20 20. The package according to Claim 9, wherein the integrated circuit comprises a ball grid array, chip scale package, or flip-chip.

21. An integrated circuit packaged in the package of Claim 9.

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22. A method of manufacturing a substrate for an unpackaged integrated circuit chip having surface mount contacts disposed thereon in a pattern, comprising:

providing an insulating material;

disposing a conductive material over the insulating material;

5 patterning the conductive material to form a plurality of contacts arranged in a pattern corresponding to the integrated circuit contact pattern; and

forming a ring in the conductive material around the periphery of the conductive material contacts, wherein the substrate contacts are coupleable to the integrated circuit chip surface mount contacts.

23. The method according to Claim 22, further comprising forming at least one conductive trace in the conductive material proximate at least one said contact.

24. The method according to Claim 23, wherein forming at least one conductive trace comprises coupling at least one conductive trace to the conductive material ring.

25. The method according to Claim 22, wherein patterning the conductive material to form the contacts comprises forming substrate contacts including wire bond pads, wherein the wire bond pads are coupleable to the integrated circuit chip surface mount contacts.

26. The method according to Claim 22, further comprising forming a plurality of apertures in the insulating material arranged in the integrated circuit contact pattern.

27. The method according to Claim 22, wherein disposing the conductive material comprises disposing Cu, Pt, Sn, Ni, Ag, Au, Cr, or combinations thereof, wherein providing an insulating material comprises providing polyimide, fiberglass or a flexible dielectric material.

28. The method according to Claim 22, further comprising electro-less plating the contacts.

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